Epoch 1/10

6726/6726 [==============================] - 14450s 2s/step - loss: 1.7287 - accuracy: 0.8376 - val\_loss: 0.3280 - val\_accuracy: 0.8855 - lr: 5.0000e-05

Epoch 2/10

6726/6726 [==============================] - 14443s 2s/step - loss: 0.2410 - accuracy: 0.9033 - val\_loss: 0.2252 - val\_accuracy: 0.9053 - lr: 5.0000e-05

Epoch 3/10

6726/6726 [==============================] - 15257s 2s/step - loss: 0.1582 - accuracy: 0.9353 - val\_loss: 0.2393 - val\_accuracy: 0.8972 - lr: 5.0000e-05

Epoch 4/10

6726/6726 [==============================] - 14677s 2s/step - loss: 0.0921 - accuracy: 0.9704 - val\_loss: 0.3338 - val\_accuracy: 0.8793 - lr: 5.0000e-05

Epoch 5/10

6726/6726 [==============================] - 15346s 2s/step - loss: 0.0318 - accuracy: 0.9940 - val\_loss: 0.4505 - val\_accuracy: 0.8806 - lr: 2.5000e-05

11530/11530 [==============================] - 515s 45ms/step

Evaluation Metrics:

Precision: 0.6783

Recall: 0.4923

F1 Score: 0.5705

ROC AUC: 0.9310

PR AUC: 0.6697

MCC: 0.5268

y\_pred = (test\_scores > 0.6).astype(int)

...: y\_true = y\_test\_augmented.astype(int)

...:

...: # Calculate evaluation metrics

...: precision = precision\_score(y\_true, y\_pred)

...: recall = recall\_score(y\_true, y\_pred)

...: f1 = f1\_score(y\_true, y\_pred)

...: roc\_auc = roc\_auc\_score(y\_true, test\_scores)

...: pr\_auc = average\_precision\_score(y\_true, test\_scores)

...: mcc = matthews\_corrcoef(y\_true, y\_pred)

...:

...: # Display evaluation metrics

...: print("\nEvaluation Metrics:")

...: print(f'Precision: {precision:.4f}')

...: print(f'Recall: {recall:.4f}')

...: print(f'F1 Score: {f1:.4f}')

...: print(f'ROC AUC: {roc\_auc:.4f}')

...: print(f'PR AUC: {pr\_auc:.4f}')

...: print(f'MCC: {mcc:.4f}')

...:

Evaluation Metrics:

Precision: 0.7540

Recall: 0.3949

F1 Score: 0.5184

ROC AUC: 0.9310

PR AUC: 0.6697

MCC: 0.5021

In [8]: y\_pred = (test\_scores > 0.7).astype(int)

...: y\_true = y\_test\_augmented.astype(int)

...:

...: # Calculate evaluation metrics

...: precision = precision\_score(y\_true, y\_pred)

...: recall = recall\_score(y\_true, y\_pred)

...: f1 = f1\_score(y\_true, y\_pred)

...: roc\_auc = roc\_auc\_score(y\_true, test\_scores)

...: pr\_auc = average\_precision\_score(y\_true, test\_scores)

...: mcc = matthews\_corrcoef(y\_true, y\_pred)

...:

...: # Display evaluation metrics

...: print("\nEvaluation Metrics:")

...: print(f'Precision: {precision:.4f}')

...: print(f'Recall: {recall:.4f}')

...: print(f'F1 Score: {f1:.4f}')

...: print(f'ROC AUC: {roc\_auc:.4f}')

...: print(f'PR AUC: {pr\_auc:.4f}')

...: print(f'MCC: {mcc:.4f}')

...:

Evaluation Metrics:

Precision: 0.8134

Recall: 0.2891

F1 Score: 0.4265

ROC AUC: 0.9310

PR AUC: 0.6697

MCC: 0.4477

Εικόνα που περιέχει κείμενο, γράφημα, διάγραμμα, γραμμή

Περιγραφή που δημιουργήθηκε αυτόματα

Εικόνα που περιέχει κείμενο, στιγμιότυπο οθόνης, οθόνη, ορθογώνιο παραλληλόγραμμο

Περιγραφή που δημιουργήθηκε αυτόματα

Εικόνα που περιέχει κείμενο, στιγμιότυπο οθόνης, διάγραμμα, γραμμή

Περιγραφή που δημιουργήθηκε αυτόματα

Εικόνα που περιέχει κείμενο, στιγμιότυπο οθόνης, διάγραμμα, ορθογώνιο παραλληλόγραμμο

Περιγραφή που δημιουργήθηκε αυτόματα

Εικόνα που περιέχει κείμενο, γράφημα, διάγραμμα, γραμμή

Περιγραφή που δημιουργήθηκε αυτόματα

Εικόνα που περιέχει κείμενο, στιγμιότυπο οθόνης, λογισμικό, διάγραμμα

Περιγραφή που δημιουργήθηκε αυτόματα

Εικόνα που περιέχει κείμενο, γράφημα, γραμμή, διάγραμμα

Περιγραφή που δημιουργήθηκε αυτόματα

Triplet 1 (Original):

Subject: https://ec.europa.eu/eurostat/NLP4StatRef/knowledge/glossaryArticle118, Predicate: https://ec.europa.eu/eurostat/NLP4StatRef/ontology/hasReference, Object: https://ec.europa.eu/eurostat/NLP4StatRef/knowledge/referenceSource59

157/157 [==============================] - 7s 42ms/step

Intercept 0.018325531880508752

Prediction\_local [0.00918457]

Right: 0.0018326917

Feature Importances (Coefficients):

Predicate: 0.023996380853146766

Subject: -0.0207535463382804

Object: -0.012383797796418211

Triplet 2 (Original):

Subject: https://ec.europa.eu/eurostat/NLP4StatRef/knowledge/hlth\_ehis\_aw1u, Predicate: https://ec.europa.eu/eurostat/NLP4StatRef/ontology/term, Object: hlth\_ehis\_aw1u

157/157 [==============================] - 6s 41ms/step

Intercept 0.021475344849314737

Prediction\_local [-0.0001203]

Right: 0.0021533587

Feature Importances (Coefficients):

Subject: -0.018356463182429818

Predicate: -0.018194919331878435

Object: 0.014955733566397521

Triplet 3 (Original):

Subject: https://ec.europa.eu/eurostat/NLP4StatRef/knowledge/paragraph9574\_3455, Predicate: http://www.w3.org/1999/02/22-rdf-syntax-ns#type, Object: https://ec.europa.eu/eurostat/NLP4StatRef/ontology/Paragraph

157/157 [==============================] - 7s 42ms/step

Intercept 0.02629053946717979

Prediction\_local [-0.00652311]

Right: 0.0066876826

Feature Importances (Coefficients):

Predicate: -0.014732478894690199

Subject: -0.010157784804252732

Object: -0.007923382972545127

Triplet 4 (Original):

Subject: https://ec.europa.eu/eurostat/NLP4StatRef/ontology/ei\_qna, Predicate: http://www.w3.org/1999/02/22-rdf-syntax-ns#type, Object: https://ec.europa.eu/eurostat/NLP4StatRef/ontology/StatisticalData

157/157 [==============================] - 7s 42ms/step

Intercept 0.010170484010441412

Prediction\_local [0.04356423]

Right: 0.0076407744

Feature Importances (Coefficients):

Subject: 0.03817118314013497

Predicate: -0.020729388817356607

Object: 0.015951951089386022

Triplet 5 (Original):

Subject: https://ec.europa.eu/eurostat/NLP4StatRef/ontology/fats\_08, Predicate: https://ec.europa.eu/eurostat/NLP4StatRef/ontology/level, Object: 4

157/157 [==============================] - 6s 41ms/step

Intercept 0.008864188436682094

Prediction\_local [0.02160183]

Right: 0.016785672

Feature Importances (Coefficients):

Predicate: 0.025162935255775287

Object: -0.006419442030184752

Subject: -0.006005851803409761